FIG. 1

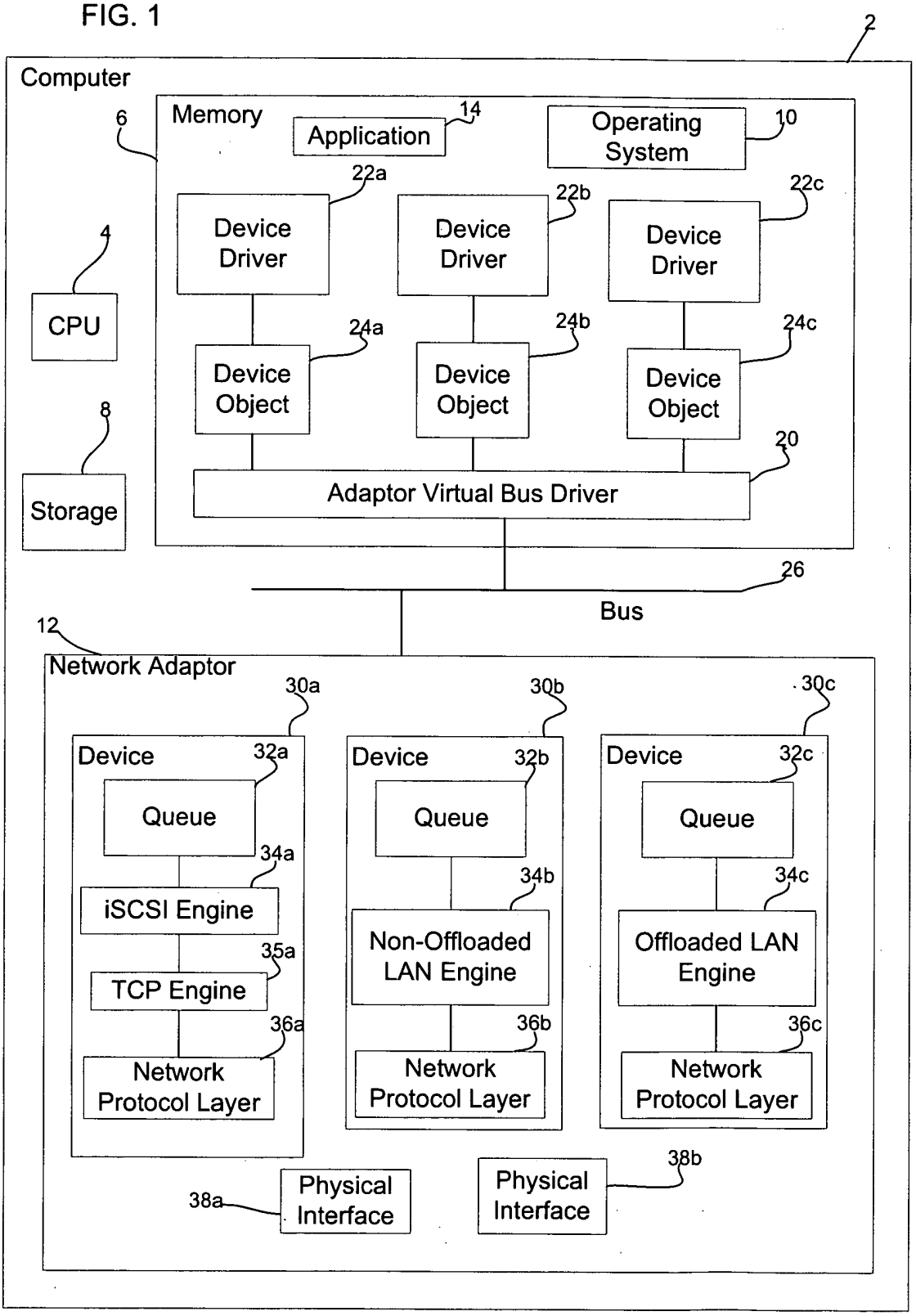

2
Computer
6
Memory
Application
14
Operating System
10
22a
Device Driver
22b
Device Driver
22c
Device Driver
4
CPU
24a
Device Object
24b
Device Object
24c
Device Object
8
Storage
20
Adaptor Virtual Bus Driver
26
Bus
12
Network Adaptor
30a
30b
30c
Device
32a
Queue
34a
iSCSI Engine
35a
TCP Engine
36a
Network Protocol Layer
Device
32b
Queue
34b
Non-Offloaded LAN Engine
36b
Network Protocol Layer
Device
32c
Queue
34c
Offloaded LAN Engine
36c
Network Protocol Layer
38a
Physical Interface
38b
Physical Interface

FIG. 2

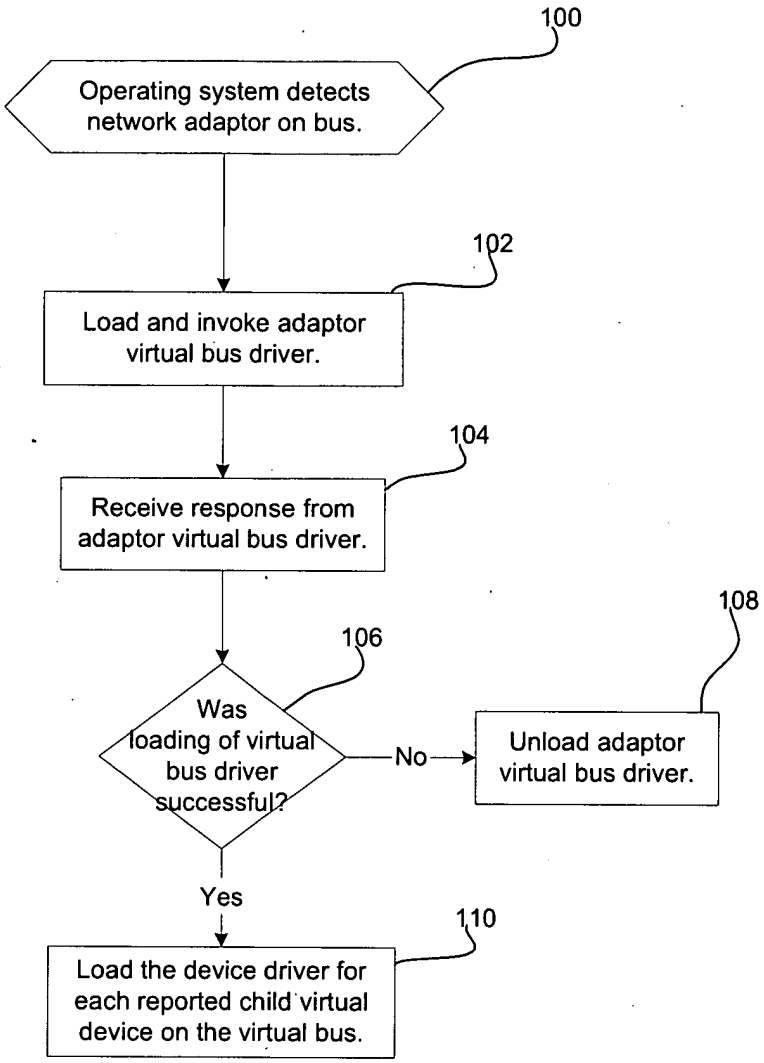

100
Operating system detects network adaptor on bus.
102
Load and invoke adaptor virtual bus driver.
104
Receive response from adaptor virtual bus driver.
106
Was loading of virtual bus driver successful?
No
108
Unload adaptor virtual bus driver.
Yes
110
Load the device driver for each reported child virtual device on the virtual bus.

FIG. 3

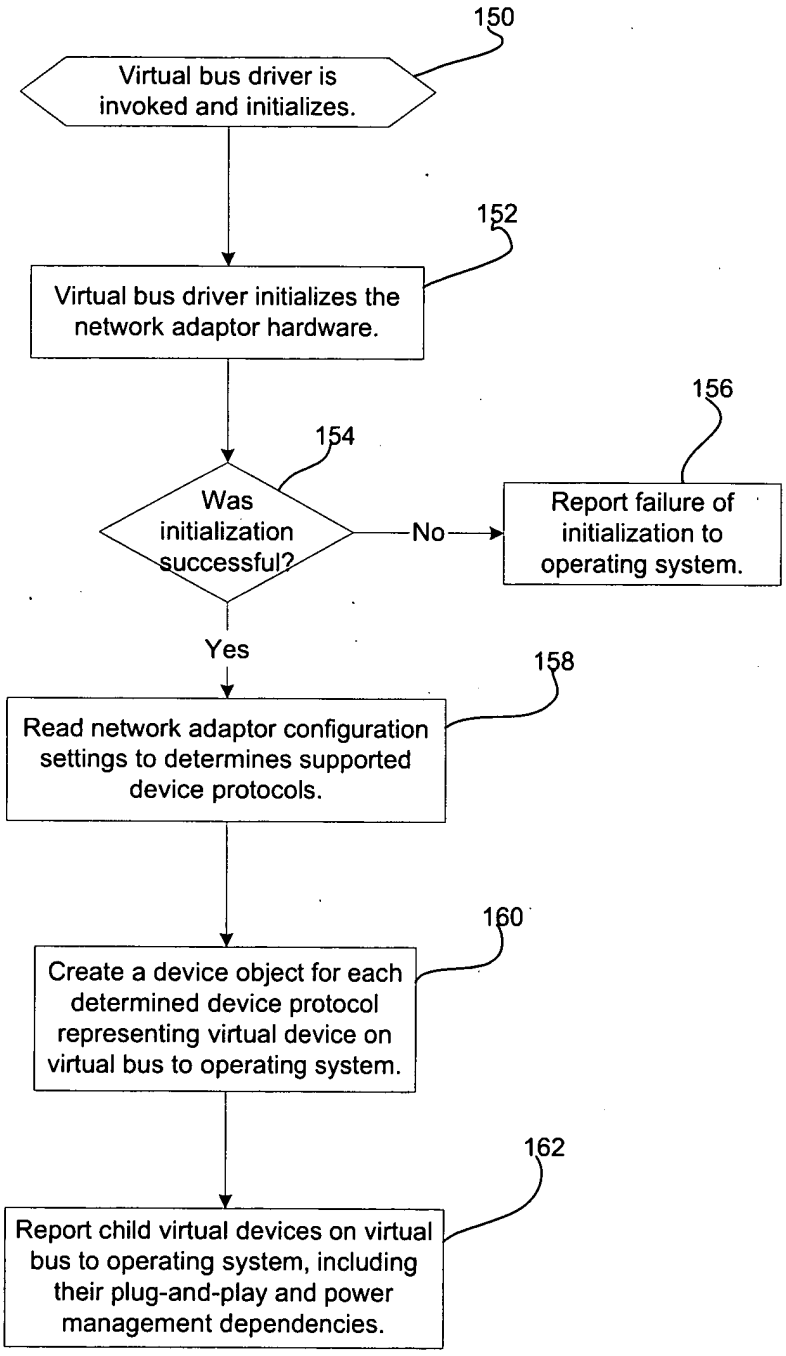

150
Virtual bus driver is invoked and initializes.
152
Virtual bus driver initializes the network adaptor hardware.
154
Was initialization successful?
No
156
Report failure of initialization to operating system.
Yes
158
Read network adaptor configuration settings to determines supported device protocols.
160
Create a device object for each determined device protocol representing virtual device on virtual bus to operating system.
162
Report child virtual devices on virtual bus to operating system, including their plug-and-play and power management dependencies.

FIG. 4

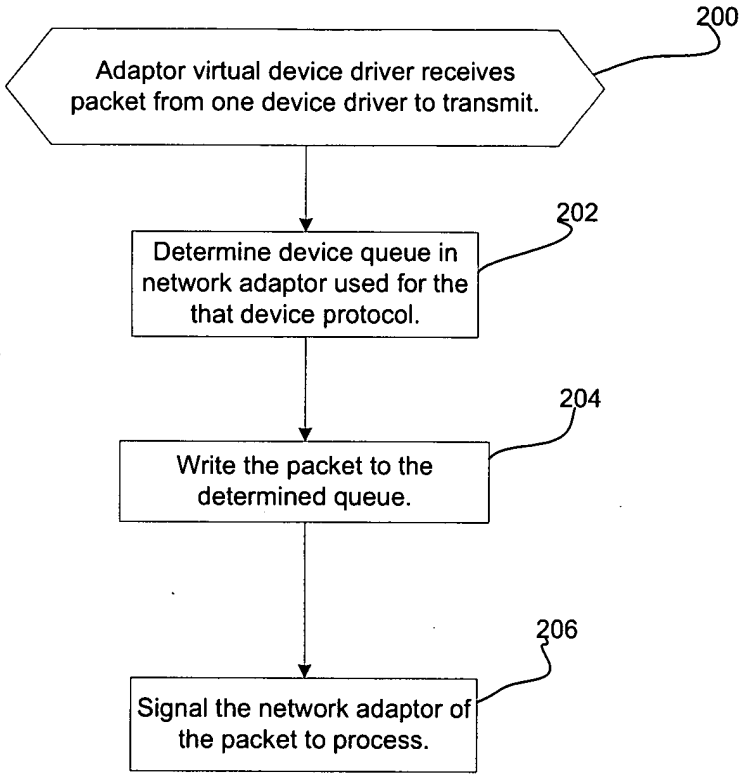

200
Adaptor virtual device driver receives packet from one device driver to transmit.
202
Determine device queue in network adaptor used for the that device protocol.
204
Write the packet to the determined queue.
206
Signal the network adaptor of the packet to process.

FIG. 5

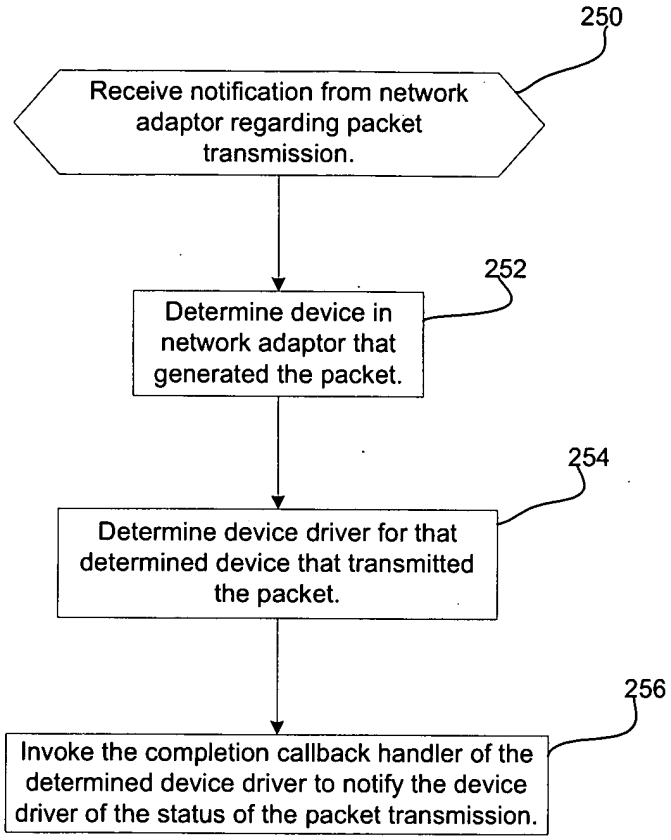

250
Receive notification from network adaptor regarding packet transmission.
252
Determine device in network adaptor that generated the packet.
254
Determine device driver for that determined device that transmitted the packet.
256
Invoke the completion callback handler of the determined device driver to notify the device driver of the status of the packet transmission.

FIG. 6

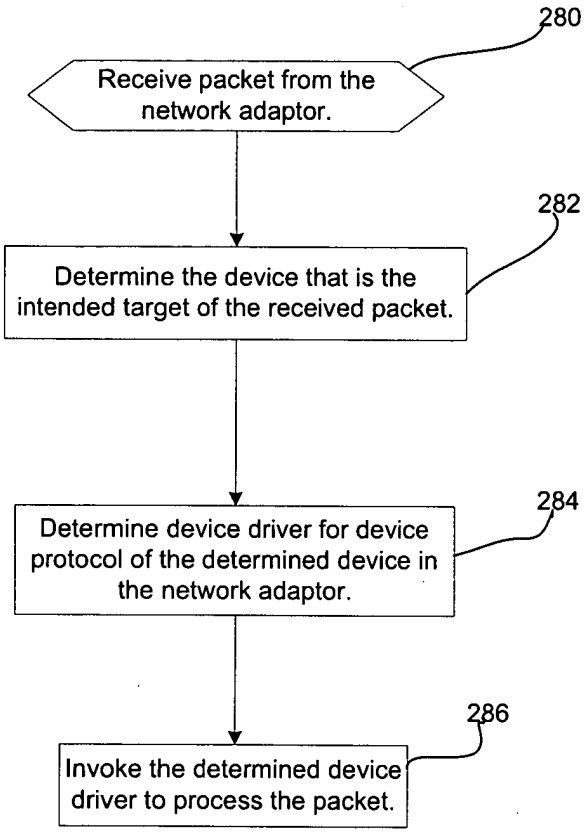
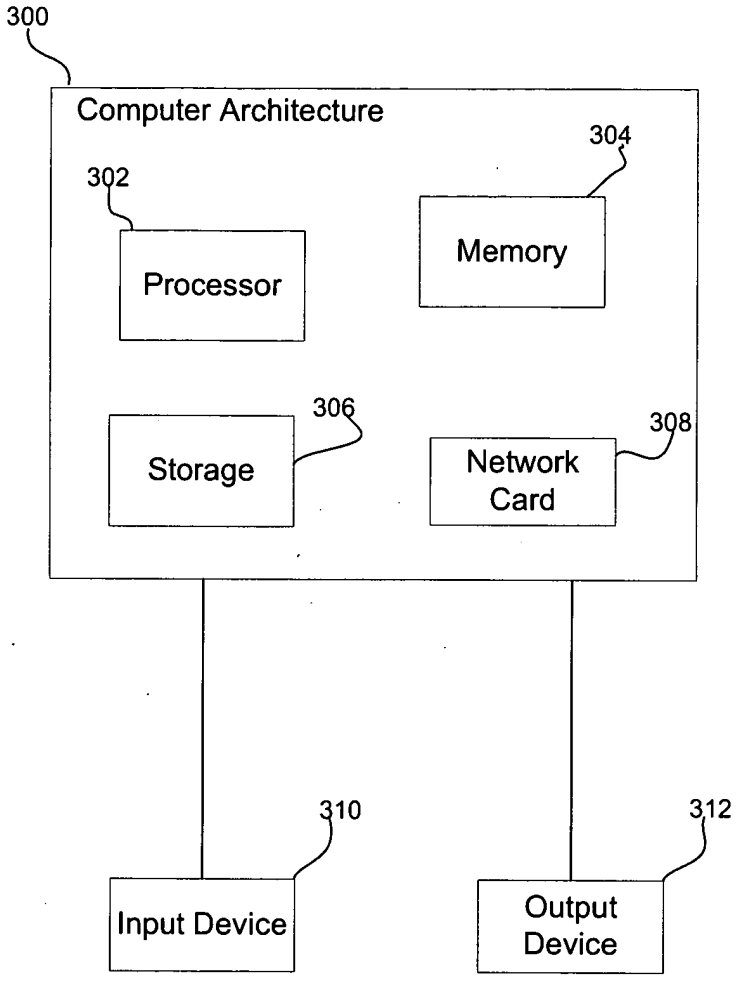

280
Receive packet from the network adaptor.
282
Determine the device that is the intended target of the received packet.
284
Determine device driver for device protocol of the determined device in the network adaptor.
286
Invoke the determined device driver to process the packet.

FIG. 7


300
Computer Architecture
302
Processor
304
Memory
306
Storage
308
Network Card
310
Input Device
312
Output Device